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ABSTRACT

Findings of research conducted by Richard B. Freeman and J. Herbert Hollomon concerning the benefits of higher education are disputed. The variations in data choice and use are discussed that seem to explain differences in the findings of Freeman and a completely separate study conducted by the author. Freeman reported that the rate of return on social investments in college training from men declined, and that the "golden age" of higher education came to an abrupt end at the outset of the 1970s. Freeman used college income and tuition charges rather than expenditures as the basis of costs, and he estimated the costs for 1972 on the basis of percentage change in median public tuition charges rather than using reports of actual expenditures. These failures to use data that reflect the actual costs of instruction yield internal rates of return that are inaccurate and unrealistically low. Another important difference between Freeman's results and the author's was due to the choice of income difference data on the basis of which returns to investments in higher education instruction were estimated. Little evidence of decline in the social rate of return on investments in college education for men was found by the author. Statistical data are presented on income and costs for men and women, and the cumulative effects of the computations are briefly described. (SW)

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HAS THE GOLDEN AGE OF HIGHER EDUCATION COME TO AN ABRUPT END?*

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In the Summer 1975 issue of The Journal of Human Resources, Richard B. Freeman reported that the rate of return on social investments in college training for men declined from 10.5 percent in 1959 to 11.1 percent in 1969, to 9.5 percent in 1972, to 7.5 percent in 1974(1). In the September 1975 issue of Change, Freeman and J. Herbert Hollomon concluded that the golden age of higher education came to an abrupt end at the outset of the 1970s(2).

I had great respect for Freeman's 1971 work, The Market for College-Trained Manpower(3), yet I had doubts about the conclusions in the 1975 study. The matter could be pursued in two different ways: I could review and analyze his work step by step, or I could check his conclusions against the conclusions of a completely separate study. I chose the latter. Because fully comparable data were not available for each of the four years, I limited my 1976 study to the years 1969 and 1972 and found no evidence of abrupt change(4).

Students of the economics of education asked how we got different results. We both used a standard computational technique, which was pioneered by Sir William Petty in 1687, improved by William Farr in 1858, and used by John R. Walsh in 1935 and by countless other economists and educators since(5). In comparing Freeman's work with mine, I found ten variations in data choice and use which, taken together, seem to explain the differences in our findings (6). Some of these variations are subjects of continuing debate elsewhere in the literature of the economics of education; another which had only minor effects will be briefly mentioned here; two warrant more detailed discussion.

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Freeman used college income and tuition charges rather than expenditures as the basis of costs and he estimated the costs for 1972 on the basis of percentage change in median public tuition charges rather than using reports of actual expenditures. These failures to use data which reflect the actual costs of instruction yield internal rates of return that are inaccurate and unrealistically low.

Institutions of higher education share three widely recognized missions: research, instruction, and public service. Expenditures for these missions, and expenditures for support services such as library, physical plant, and administration, are regularly reported in publications of the U.S. Office of Education(7). All of these expenditures are, in turn, grouped under the heading "Educational and general expenditures" to separate them from expenditures for "Auxiliary enterprises," "Student-aids," etc. Freeman estimated costs on the basis of data describing all educational and general activities and in doing so implied that billions of dollars of annual research and public service activity are cost-free.

Another important difference between Freeman's results and mine was due to the choice of income difference data on the basis of which returns to investments in higher education instruction were estimated. Freeman chose income data for 1969 from the 1970 U.S. Census and estimated 1972 incomes by applying the 1969 to 1972 increases reported in Current Population Reports, Series P-60, No. 92 to the Census income profiles(8). I used data from Current Population Reports, Series P-60, No. 92 as the basis of income estimates for both the 1969 and the 1972 computations. The information in TABLE 1 reveals the contrasts between the data for 1969 collected through the 1970 U.S. Census and the data for the same year collected through the Current Population Survey. This illustrates the effects of different data collection procedures and

dramatically indicates why the use of consistent sources of data is important in deriving social statistics.

TABLE 1

Comparisons of Annual Income Data for Men at Selected Ages in 1969 as Reported in Different Sources (in constant 1977 dollars)

Data Source:	1970 Census			Current Population Survey		
Age	High School (a)	College (b)	Difference (b-a=c)	High School (d)	College (e)	Difference (e-d=f)
23	$8,910	$7,245	-$1,665	$8,466	$9,974	$1,508
27	12,524	14,893	+2,369	10,955	15,140	4,185
32	14,297	20,721	6,424	13,437	20,417	6,980
40	15,840	25,760	9,920	15,955	26,138	10,183
50	16,725	28,909	12,184	16,587	28,970	12,383
60	15,558	27,923	21,365	14,425	25,761	11,336

My choice and use of data has also been reviewed and criticized. Pursuing the question of whether the golden age of higher education has come to an abrupt end, I have incorporated the well-founded suggestions of critics in revised computations. The cumulative effects of these computations, which are briefly described in the paragraphs that follow, are summarized in TABLE 2.

In my earlier computations I included the extra costs that students incur by leaving home to live at college. This is not proper because non-students also incur such costs whether they are costs of consuming at a higher standard of living or costs of investing through mobility in search of better employment.

The costs of higher education include the expenditure of resources for professional and graduate education. In my earlier computations I only included the costs of four years of education. Taking account of the extra years of schooling for the share of the cohort which pursues professional and graduate education increases the costs and decreases the annual rates of return.

TABLE 2

Estimates of Costs and Annual Rates of Return
on Social Investments in Higher Education Instruction
on the Bases of Different Data

Description of Data Changes	Decision Year: 1969 Constant Dollar Costs*	1969 Rates of Return	1972 Constant Dollar Costs*	1972 Rates of Return
Freeman's 1975 estimates.	$30,039	11.1%	$32,718	9.5%
Costs based on expenditures instead of income.	29,394	11.2	32,039	9.6
Expenditures for research and public service excluded.	25,678	12.0	26,791	10.6
All income estimates based on same sources.	25,678	14.8	26,791	14.3
Witmer's 1976 estimates.	21,552	15.3	22,746	15.2
Costs of leaving home deleted.	20,346	15.8	21,429	15.6
Costs of professional & graduate schooling added.	22,676	15.2	23,792	15.1
Better income foregone data substituted.	22,626	14.93	19,989	15.97
Higher Education Price Index substituted.	22,803	14.90	19,945	15.95
Better income growth estimates substituted.	22,803	13.0	19,945	14.5
Data for women added.	17,665	14.3	15,068	15.2

* In constant 1977 dollars. Income foregone included in costs.

In my earlier computations I used data published in Current Population Reports, Series P-60, No. 92 as the bases of estimates of the income students forego at ages 18, 19, 20 and 21 while in college(9). These data are extrapolations from a parabolic curve centered on incomes at ages 21½, 30, 40, 50, and 60. Data from the annual Current Population Survey tapes for the years 1969 and since yield more accurate estimates of income foregone by students in each year of study.

The prices of resources expended in the operations of institutions of higher education have not been changing at the same rates as the commodities and services on which the consumer price index is based. The price of faculty time and effort, for example, has not increased as rapidly in recent years as the cost of living. Although the consumer price index continues as the best indicator of changes in the value of income realized and income foregone, the higher education price index developed by D. Kent Halstead(10) is a superior indicator of the changing values of resources expended in institutions of higher education.

Most of the income of persons who, in 1969 or 1972, decided to pursue higher education will be realized in years following 1975, the most recent year for which Current Population Survey data are available. In my 1976 study I estimated future income by projecting long-term trends. Multiple correlation studies and regression analyses indicate that the accuracy of predictions of income levels can be substantially increased by incorporating elements such as birth rates, college graduation rates, expenditures for higher education as a share of Gross National Product, ratios of first time college enrollees to high school graduates, etc.

The current population surveys of the U.S. Bureau of the Census have included data describing the incomes of both women and men. The resulting

statistics are comparable and consistent. By combining weighted data for women and men we get a more valid indication of the level of higher education than by ignoring the experiences of the women who are more than 40 percent of the students and graduates.

Finally, the validity of our conclusions concerning whether the golden age of higher education has come to an abrupt end is increased by extending our study from the two years 1969 and 1972 to all of the years, 1961 through 1975, for which fully comparable and consistent data are available(11). The results of a restudy of the costs, lifetime income differences, and annual rates of return on social investments in undergraduate and graduate education for women and men are set forth in TABLE 3.

In the summer of 1975 Freeman reported that the social rate of return on investments in college education for men changed from 10.5 percent in 1959 to 11.1 percent in 1969, to 9.5 percent in 1972 and 7.5 percent in 1974. Because fully comparable data were not available for each of the four years, I limited my 1976 study to the students who entered college in 1969 and 1972. I found little evidence of decline. My current study, which reflects changes suggested by thoughtful critics, yields results for students who entered college during each of the years 1961 through 1975. In light of the evidence before us, the golden age of higher education has not come to an abrupt end!

TABLE 3

Annual Rates of Return on Social Investments in Higher Education for Men and for Women, 1961-75

	Men			Women			All Persons		
Year*	Social Costs**	Income Differences***	Rates of Return****	Social Costs**	Income Differences***	Rates of Return****	Social Costs**	Income Differences***	Rates of Return****
1961	$17,152	$286,367	14.2%	$11,176	$284,450	16.2%	$14,863	$285,633	15.0%
1962	18,017	286,501	13.9	10,562	291,517	16.7	15,184	288,407	15.0
1963	18,358	288,041	13.7	10,028	307,943	17.5	15,168	295,663	15.2
1964	18,855	291,638	13.7	9,433	306,649	17.9	15,105	297,612	15.4
1965	19,532	295,831	13.5	9,986	313,910	17.2	15,666	303,153	15.0
1966	21,375	293,039	13.0	9,617	307,943	17.6	16,648	299,030	14.8
1967	25,338	296,497	12.1	9,986	322,968	17.2	19,074	307,297	14.2
1968	23,020	299,235	12.5	10,321	329,172	16.5	18,121	311,659	14.2
1969	22,803	302,744	13.0	10,598	336,163	16.0	17,665	316,813	14.3
1970	21,746	306,825	13.5	10,749	342,465	15.7	17,028	322,115	14.4
1971	20,959	313,191	14.1	9,996	340,059	15.8	16,157	324,959	14.8
1972	19,945	320,663	14.5	9,059	341,102	16.1	15,068	329,820	15.2
1973	19,413	332,388	15.2	10,008	345,646	15.1	15,162	338,381	15.2
1974	15,890	337,805	17.2	10,346	353,767	14.8	13,356	345,100	16.1
1975	14,682	347,735	18.4	10,712	358,700	14.5	12,852	352,790	16.6

* Year of high school graduation and entry to college.

** In constant 1977 dollars.

*** Portion of income difference attributable to higher education, in constant 1977 dollars.

**** The relationships among costs, income differences, and rates of return are not fixed because of fluctuations in the timing of expenditures, economic growth, and income.

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